

Applicants: Allan Green et al.
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In the Claims

Please amend the claims by replacing all prior listings of claims with the listing of claims below pursuant to 37 C.F.R. §1.121:

1-40. (Canceled).

41. (Previously Presented) A process for producing a transgenic plant comprising

a) transforming a cell or tissue of a plant with a nucleic acid encoding a polypeptide having the following three histidine-rich regions (i), (ii) and (iii):

(i) His-(Xaa)₃-His (SEQ ID NO: 21) or
His-(Xaa)₄-His (SEQ ID NO: 22);

(ii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or
His-(Xaa)₃-His-His (SEQ ID NO: 24); and

(iii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or
His-(Xaa)₃-His-His (SEQ ID NO: 24),

wherein His designates histidine, Xaa designates any naturally-occurring amino acid, (Xaa)₃ refers to a sequence of three amino acids, (Xaa)₄ refers to a sequence of four amino acids, and (Xaa)₂ refers to a sequence of two amino acids,

wherein the polypeptide comprises a sequence of amino acids at least 60% identical to the sequence of amino acids set forth in SEQ ID NO: 2, and

wherein the nucleic acid is under the control of a promoter conferring transcription of the nucleic acid in the plant; and

b) regenerating the transformed cell or tissue to produce the transgenic plant.

42. (Previously Presented) The process of claim 41, wherein the plant is *Arabidopsis thaliana*, flax, oilseed rape,

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sunflower, safflower, soybean, sesame, cottonseed, peanut,
olive or oil palm.

43. (Previously Presented) The process of claim 41, wherein the
plant is flax, sunflower, corn, or safflower.

44-49. (Cancelled)

50. (Currently Amended) The process of claim 41, further
comprising a step of selecting a transgenic plant
expressing a ~~functional~~ an epoxygenase.

51. (Previously Presented) The process of claim 50, wherein the
plant is *Arabidopsis thaliana*, flax, oilseed rape,
sunflower, safflower, soybean, sesame, cottonseed, peanut,
olive or oil palm.

52. (Previously Presented) The process of claim 50, wherein the
promoter is a seed-specific promoter.

53. (Previously Presented) The process of claim 50, further
comprising producing seed of the plant.

54. (Currently Amended) The process of claim 53, further
comprising selecting a seed having 12,13-epoxy-9-
octadecenoic acid at a level of greater than 0.7%(w/w) of
the total seed fatty acid content.

55. (Currently Amended) The process of claim 50, further
comprising, prior to transforming the cells or tissue,
obtaining the nucleic acid from a plant possessing the
genetic capacity to synthesize epoxy fatty acids, and
producing a gene construct which comprises the nucleic acid

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and the promoter.

56. (Previously Presented) The process of claim 55, wherein the plant is of *Chrysanthemum* spp., *Crepis* spp., *Euphorbia* spp., or *Vernonia* spp.

57. (Previously Presented) A process for producing a transformed plant cell comprising introducing into the plant cell a nucleic acid encoding a polypeptide having the following three histidine-rich regions (i), (ii) and (iii):

(i) His-(Xaa)₃-His (SEQ ID NO: 21) or

His-(Xaa)₄-His (SEQ ID NO: 22);

(ii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or

His-(Xaa)₃-His-His (SEQ ID NO: 24); and

(iii) His-(Xaa)₂-His-His (SEQ ID NO: 23) or

His-(Xaa)₃-His-His (SEQ ID NO: 24),

wherein His designates histidine, Xaa designates any naturally-occurring amino acid, (Xaa)₃ refers to a sequence of three amino acids, (Xaa)₄ refers to a sequence of four amino acids, and (Xaa)₂ refers to a sequence of two amino acids,

wherein the polypeptide comprises a sequence of amino acids at least 60% identical to the amino acid sequence set forth in SEQ ID NO: 2, and

wherein the nucleic acid is under the control of a promoter conferring transcription of the nucleic acid in a plant cell and is stably integrated into the genome of the cell, thereby producing the transformed plant cell.

58. (Previously Presented) The process of claim 57, wherein the plant is *Arabidopsis thaliana*, flax, oilseed rape, sunflower, safflower, soybean, sesame, cottonseed, peanut, olive or oil palm.

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59. (Currently amended) The process of claim 57, wherein the process further comprises, prior to introducing into the plant cell, obtaining the nucleic acid from a plant possessing the genetic capacity to synthesize epoxy fatty acids, and producing a gene construct which comprises the nucleic acid and the promoter.
60. (Previously Presented) The process of claim 59, wherein the plant is of *Chrysanthemum* spp., *Crepis* spp., *Euphorbia* spp., or *Vernonia* spp.
61. (Previously Presented) The process of claim 57, wherein the promoter is a seed-specific promoter.
62. (New) The process of claim 41, wherein the promoter is a seed-specific promoter.
63. (New) The process of claim 62, further comprising producing seed of the transgenic plant.
64. (New) The process of claim 41, further comprising examining the transgenic plant or tissue thereof for the presence of epoxy fatty acids to determine whether the transgenic plant has epoxy fatty acids.
65. (New) The process of claim 64, wherein the promoter is a seed-specific promoter.
66. (New) The process of claim 65, further comprising producing seed of the transgenic plant.

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67. (New) The process of claim 64, further comprising, prior to transforming the cell of tissue, obtaining the nucleic acid from a plant possessing the genetic capacity to synthesize epoxy fatty acids, and producing a gene construct which comprises the nucleic acid and the promoter.